

## CLAIMS

1. An apparatus for fabricating a semiconductor wafer, comprising:  
a wafer handling device, and  
a contaminant sensor secured to the wafer handling device, the  
5 contaminant sensor being configured to detect presence of a contaminant on a  
backside of the wafer when the wafer is positioned in the wafer handling device.
2. The apparatus of claim 1, wherein the contaminant sensor  
comprises a deformable detection surface configured to contact the backside of the  
10 wafer when the wafer is positioned in the wafer handling device.
3. The apparatus of claim 1, wherein:  
the contaminant sensor is configured to output (i) a first control signal  
indicative of a first capacitance value when the backside of the wafer is devoid of  
15 contaminant particles, and (ii) produce a second control signal indicative of a second  
capacitance value when a contaminant particle is present on the backside of the wafer,  
and  
the first control signal is different from the second control signal.
- 20 4. The apparatus of claim 1, wherein the contaminant sensor  
comprises a first conductive film, a second conductive film, and a dielectric film  
positioned between the first conductive film and the second conductive film.

5. The apparatus of claim 4, wherein the first conductive film is configured to contact the backside of the wafer when the wafer is positioned in the wafer handling device.

5                   6. The apparatus of claim 1, wherein the contaminant sensor comprises a pressure sensing film.

7. The apparatus of claim 1, wherein the contaminant sensor comprises a liquid crystal film.